

## REMARKS

Claims 1–48 are pending in the application. These claims were rejected as follows:

<b>Claims / Section</b>	<b>35 U.S.C. Sec.</b>	<b>References / Notes</b>
3 & 7	Objection	<ul style="list-style-type: none"> <li>• Antecedent basis.</li> </ul>
1, 2, 12–15, 18, 20, 22–24, 28, 30–32, 36, 37, & 39–46	§102(b) Anticipation	<ul style="list-style-type: none"> <li>• Jampolsky (U.S. Patent No. 5,434,924).</li> </ul>
3, 4, 16, 25, & 34	§103(a) Obviousness	<ul style="list-style-type: none"> <li>• Jampolsky (U.S. Patent No. 5,434,924).</li> </ul>
5, 6, 11, 17, 21, 33, 38	§103(a) Obviousness	<ul style="list-style-type: none"> <li>• Jampolsky (U.S. Patent No. 5,434,924); and</li> <li>• Van Schaik (U.S. Patent No. 6,681,635).</li> </ul>
7, 8, 19, 27, & 47	§103(a) Obviousness	<ul style="list-style-type: none"> <li>• Jampolsky (U.S. Patent No. 5,434,924); and</li> <li>• Westermann (U.S. Patent No. 6,549,633).</li> </ul>
9 & 35	§103(a) Obviousness	<ul style="list-style-type: none"> <li>• Jampolsky (U.S. Patent No. 5,434,924); and</li> <li>• Andersen, et al. (U.S. Patent No. 6,339,647).</li> </ul>
10	§103(a) Obviousness	<ul style="list-style-type: none"> <li>• Jampolsky (U.S. Patent No. 5,434,924); and</li> <li>• Lindemann (U.S. Patent No. 5,479,522).</li> </ul>
48	§103(a) Obviousness	<ul style="list-style-type: none"> <li>• Jampolsky (U.S. Patent No. 5,434,924);</li> <li>• Westermann (U.S. Patent No. 6,549,633); and</li> <li>• Weinfurtner, et al. (U.S. Patent No. 6,035,050).</li> </ul>

5 Applicants have amended claims 3 and 7 to address the Examiner's objections, but have otherwise provided discussion related to the distinction

between the present invention and the Examiner's primary reference, Jampolsky.

Applicants have further added claim 49 for consideration by the Examiner.

Applicants' use of reference characters below is for illustrative purposes only and is not intended to be limiting in nature unless explicitly indicated.

5

**OBJECTION TO CLAIMS 3 AND 7**

*1. Applicants have amended claims 3 and 7 to clarify that it is data and not a signal, per se, that is transmitted.*

In the OA, on p. 2, the Examiner objected to use of the phrase "a signal" in claims 3 and 7. In response, Applicants have amended claims 3 and 7

10 respectively to clarify that it is the data that is transmitted.

Applicants understand this amendment to have clarified the claim language and respectfully request that the Examiner withdraw the objection. In the event that this language remains unclear, Applicants invite suggestions from the Examiner for further clarification.

15 **35 U.S.C. §102(b), CLAIMS 1, 2, 12–15, 18, 20, 22–24, 28, 30–32, 36, 37, & 39–46**  
**ANTICIPATION BY JAMPOLSKY**

*2. Jampolsky fails to teach the steps of determining a signal transit time, transmitting a signal related to the determined signal transit time, and adapting a signal transit time, and therefore does not anticipate independent claim 1 of the*  
20 *present invention.*

In the OA, on p. 3–4, the Examiner states that Jampolsky teaches each and every element of claim 1. Namely, with regard to the last three elements of claim 1, the Examiner states that Jampolsky teaches:

5 determining a signal transit time of the electrical signal (signal of fixed time delay 28, Figs. 4A, 5, e.g., 200 mms; col. 10, lines 7-11, lines 44-55) in a signal path between the input transducer and the output transducer of the first hearing aid device (i.e., the 200 mms is the transit time of electrical signal passing through the delay 28, which is between microphone 24L and speaker 50L; see Figs. 1A, 4A, 5; col. 5, lines 51-55);

10 transmitting a signal (delay adjustment signal, col. 6, line 60 - col. 7, line 16) via the signal path (see Fig. 1A) for data transmission from the first hearing aid device (impaired ear, Fig. 1) to the second hearing aid device (normal ear, Fig. 1) related to the determined

15 signal transit time (col. 6, line 49 - col. 7, line 2; see Fig. 1A); and

20 adapting a signal transit time of the electrical signal in a signal path between the input transducer and the output transducer of the second hearing aid device (by adjusting the variable time delay Figs. 1A, 2, e.g., maximum delay 400 mms, col. 10, lines 44-58) to the determined signal transit time in the first hearing aid device based on the transmitted signal (delay adjustment signal, col. 6, line 60 - col. 7, line 16).

25 However, the Examiner has incorrectly related the teaching of Jampolsky with the claimed elements.

By way of background, there is a significant difference between the invention and what is taught by Jampolsky. In generally, when Jampolsky is talking about “time delays” and “hearing systems”, he is talking about the

30 biological “system” of the user, as can be seen, e.g., in 3:64 (column:line), et seq.: “I have found that the hearing channels or systems...”. Also, the words “time delay mode (3:64, et seq.) refer to the biological system of the user. This biological time shift seems to be dependant on the hearing loss of the particular ear. This is the reason why Jampolsky’s disclosure is especially useful when

35 there is a big difference in the hearing perception of the ears of a user (see, e.g.,

Jampolsky's Summary of Invention section). Complex and time consuming tests are necessary to determine the time shift. These tests may include EEG measurements, brain stem potential measurements and imaging techniques, like PET or NMR (see, 3.g., 9:8, et seq.). The measured time shifts are considered  
5 and balanced with the help of the hearing aids.

This is in contrast to the basic idea of the present invention, which is to adapt the processing time of hearing aids (that form a technical "hearing system"). Jampolsky does not at all refer to the differences in processing time of two hearing aids. He refers to the time shift of a biological "hearing system". The  
10 measurement of the time shift of the biological system is very complex, whereas the measurement of transit times for the technical hearing systems of the invention is rather easy. The measurements in the present invention are made automatically by the hearing aids, whereas the measurements of the Jampolsky reference are very complex and carried out by a doctor, audiologist, etc. It is not  
15 possible to make these measurements automatically by the hearing aids. The idea of Jampolsky is especially helpful when there is a big difference in the hearing loss of the two ears of a user, whereas differences in the hearing loss between the ears of a user does not play a role at all with regard to the present invention. With regard to the Jampolsky reference, the time shift of the  
20 (biological) hearing system is measured once and the hearing aids are adjusted accordingly. In the present invention, the time shift (of the technical hearing system) is measured throughout the life time of the hearing aids.

Referring specifically to the elements of claim 1, first, Jampolsky fails to teach or suggest determining a signal transit time of the electrical signal in a

signal path between the input transducer and the output transducer of the first hearing device. The Examiner has indicated that the presence of a fixed time delay 28 of 200  $\mu$ s between the frequency selective filter 13 and the earphone 14 is sufficient to disclose the claimed element. However, this delay is not, as  
5 claimed, a signal transit time between the input transducer and the output transducer—it is only a delay between a small portion of the signal path, and there is no accounting of the delay in the amplifier or the filter. Thus, the 200  $\mu$ s does not reflect a signal transit time of the electrical signal between the input transducer and the output transducer.

10 Jampolsky further fails to teach transmitting a signal from the first hearing aid device to the second hearing aid device related to the determined signal transit time. The Examiner has read Jampolsky's discussion at 6:49 – 7:16 as disclosing transmitting the signal related to the determined signal transit time. However, this section of Jampolsky could not possibly be interpreted as reading  
15 on the claimed hearing aid system, since this section of Jampolsky describes a testing mechanism used by an audiologist. Jampolsky states, at 5:52–55:

20 FIG. 1A shows a hearing evaluation system for measuring or determining the binaural hearing characteristics of a patient 10 so that one can tailor a hearing aid according to the invention for such patient.

Jampolsky, in the sections cited by the Examiner, then indicate how that the audiologist or tester employs an audiometer or VFO for the purposes of testing the hearing of the user. Jampolsky then states, at 6:60 – 7:2:

25 The output of VFO 16 also is connected to a right earphone 18 via the series combination of a variable amplitude attenuator (VAA) 20 (calibrated in decibels, abbreviated dB, and representing relative power units)

5                   and a variable time delay (VTD) 22 (sometimes known  
                  as a variable phase shifter) calibrated in  
                  microseconds [mms] of delay). As indicated, amplifier  
                  12 includes a fixed time delay so that VTD 22 in the  
                  right ear's channel can be adjusted effectively to  
                  advance sound to the right ear, as explained below.

                  Clearly the delay discussed in this section is not the same delay as the  
200  $\mu$ s delay of the filter (which the Examiner had previously equated with the  
step of determining a signal transit time), and therefore, the Examiner has  
10   ignored a linkage of the elements as required by the claims. Furthermore, even if,  
for the sake of argument, this were construed as information related to the  
determined signal transit time, this information is not transmitted via the signal  
path for data transmission from the first hearing aid device to the second hearing  
aid device. Rather the relevant information would be transmitted to an  
15   audiologist, not from one hearing aid to the other, so that the audiologist could  
adjust the VTD in the right ear's channel (see 6:64–69).

                  Finally, with respect to the last claimed adapting element, Jampolsky fails  
to teach adapting a signal transit time in the second hearing device that  
corresponds to the determined signal transit time in the first hearing aid device.  
20   The section cited by the Examiner does indicate that a delay adjustment is made,  
but nowhere is it suggested in Jampolsky that the adjustment value in the second  
hearing aid is in any way related to an attribute that is determined in the first  
hearing aid device.

                  Lacking a teaching of these claimed elements, Applicants respectfully  
25   assert that Jampolsky fails to anticipate claim 1 of the present invention.

3. *Jampolsky fails to teach the steps of determining an amplification value or change in amplification value, transmitting a signal related to these values, and adapting these values, and therefore does not anticipate independent claim 14 of the present invention.*

5           Similar to the arguments above, the section cited by the Examiner of Jampolsky for determining an amplification value or change in amplification value is not one that is in a signal path between the input transducer and the output transducer of the first hearing aid device. Element 12, as referenced by the Examiner, does not lie between the input and output transducers of the first  
10   hearing aid device, but rather is provided between a VFO used to test and the earphone of the testing device.

          Furthermore, the 20db amplitude difference is not a value that is determined between the input transducer and the output transducer, but is a difference between the required amplification for the two different ears.

15   Furthermore, there is no transmitting via a signal path between the first and second hearing devices, for information relating to an amplification value or change in amplification value.

          Lacking a teaching of these claimed elements, Applicants respectfully assert that Jampolsky fails to anticipate claim 14 of the present invention.

20           4. *Jampolsky fails to teach the steps of determining a signal amplitude, transmitting the signal amplitude, and adapting an amplification of an electrical signal, and therefore does not anticipate independent claim 24 of the present invention.*

Similar to the arguments above, the section cited by the Examiner of Jampolsky for determining a signal amplitude is not one that is in a signal path between the input transducer and the output transducer of the first hearing aid device. Element 12, as referenced by the Examiner, does not lie between the  
5 input and output transducers of the first hearing aid device, but rather is provided between a VFO used to test and the earphone of the testing device.

Furthermore, there is no transmitting via a signal path between the first and second hearing devices, for information relating to the determined signal amplitude.

10 Lacking a teaching of these claimed elements, Applicants respectfully assert that Jampolsky fails to anticipate claim 24 of the present invention.

*5. Jampolsky fails to teach or suggest the elements of independent system claims 32, 39, 43, and 47 corresponding to the independent method claims 1, 14, and 24 for reasons discussed above.*

15 Independent system claims 32, 39, 43, and 47 correspond to independent method claims 1, 14, and 24. Applicants respectfully assert that the above arguments made with respect to the independent method claims apply equally to the corresponding independent system claims.

For these reasons, Applicants respectfully assert that since Jampolsky  
20 fails to teach or suggest each and every element of the independent claims of the application, Jampolsky does not anticipate the present invention, and request that the Examiner withdraw the 35 U.S.C. §102 rejection from the application.



**35 U.S.C. §103(a), CLAIMS 2–13, 15–23, 25–31, 33–38, 40–42, 44–46, AND 48  
OBVIOUSNESS OVER JAMPOLSKY IN VIEW OF SOME COMBINATION OF VAN SCHAIK,  
WESTERMANN, ANDERSEN, LINDEMANN, AND WEINFURTNER**

6. *Applicant relies upon the above arguments with respect to the remaining dependent claims, and asserts that none of the additional references supplants the deficiencies identified above with respect to the Jampolsky reference.*

In the OA, the Examiner combined Jampolsky with numerous other references in establishing an obviating combination of references for various dependent claims in the present application. Without addressing the specifics of the additional references on the merits, Applicants rely upon the above arguments and assert that the disclosures of each of these additional references, alone or in combination, does not serve to solve the deficiencies of the Jampolsky reference. The Examiner has cited these references for purposes related to the specifics of the dependent claims.

For these reasons, the Applicant asserts that the claim language clearly distinguishes over the prior art, and respectfully request that the Examiner withdraw the §103 rejection from the present application.

## CONCLUSION

Inasmuch as each of the objections have been overcome by the amendments, and all of the Examiner's suggestions and requirements have been satisfied, it is respectfully requested that the present application be reconsidered, the rejections be withdrawn and that a timely Notice of Allowance be issued in this case.

Any shortages of fees due may be charged to, and any overpayments may be credited to, deposit account no. 50-1519.

Respectfully submitted,

5

/Mark Bergner/ (Reg. No. 45,877)

Mark Bergner

SCHIFF HARDIN, LLP

PATENT DEPARTMENT

10

6600 Sears Tower

Chicago, Illinois 60606-6473

(312) 258-5779

Attorney for Applicants

Customer Number 26574

15